
PHIL 2301
Introduction to the Philosophy of Science



Fall 2020
Course Outline

I. Admin

Instructor: Gabriele Contessa, Associate Professor, Philosophy Dept.

Virtual Office Hours: Wednesday, 1:30pm–2:30pm or by appointment (<https://zoom.us/j/95880725298>)

Virtual Lectures: Wednesday and Friday, 2:35pm–3:55pm (<https://zoom.us/j/93100873457>)

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II. Description

Philosophical issues arising out of the attempt to understand the world scientifically. Topics may include: scientific methodology, revolution, observation, explanation, causation, induction, reduction, the difference between natural and social scientific understanding, realism, instrumentalism, constructivism.

III. Prerequisites

A course in philosophy or second-year standing.

IV. Readings

Our background readings for the first part of the term will be from T. S. Kuhn, *The Copernican Revolution: Planetary Astronomy in the Development of Western Thought*, Harvard University Press, 1957, which can be purchased through any major online bookstore.

All other readings will be made available through cuLearn.

V. Grading

- a. Two Online Tests (15% each);
- b. Level Assignments (30% in total) (see details below);
- c. Checkpoint Questions (25% in total) (see details below);
- d. Attendance and Participation (15%).

Please see the Course Schedule for test dates and assignment deadlines.

Please note that all final grades are subject to the approval of the Dean of the Faculty of Arts and Social Sciences.

VI. Policies

Overview. The plan is to have virtual lectures on Zoom (<https://zoom.us/j/95688309462>). Please be aware that we might have to switch to a different delivery method during the term if this does not work.

Attendance. Class attendance is required and it is critical to your success in this course. If your circumstances are preventing you from attending class regularly, please inform me as soon as possible.

Participation. Participation can take many forms, including asking questions in class (whether via audio/video or chat), responding to an in-class poll, as well as participating in the discussion forums on cuLearn.

Level Assignments. The assignment for this course use a “level” system. The idea of the level system is that you have to master a certain skill in order to “unlock” the next level. There are three levels--Bronze, Silver, and Gold. You can make up to four attempts in total. The deadlines for submitting an attempt are in the Course Schedule below. Instructions for each attempt will be posted on cuLearn about two weeks before the deadline.

Level	Skill to Master	Grade
Gold	Outline as clearly, informatively, and concisely as possible: (i) a philosophical thesis, (ii) an argument against that thesis, and (iii) an objection to that argument. (Word Limit: 300)	“Perfect!” = 100
		“Amazing!” = 92.5
		‘Great!’ = 85
		‘Nice!’ = 82.5
Silver	Outline as clearly, informatively, and concisely as possible: (i) a philosophical thesis, and (ii) an argument for or against that thesis. (Word Limit: 200)	‘Level Completed!’ = 80
		‘Almost There!’ = 67.5
		‘Good Try, but Not There Yet!’ = 75
		‘You Are Going to Have to Try Harder!’ = 72.5
Bronze	Outline a philosophical thesis as clearly, informatively, and concisely as possible. (Word Limit: 100)	‘Level Completed!’ = 70
		‘Almost There!’ = 67.5
		‘Good Try, but Not There Yet!’ = 65
		‘You Are Going to Have to Try Harder!’ = 62.5

The level system used in this course is inspired by the one developed by Dustin Locke. The idea is for every student to work at a level that is challenging enough to be interesting for them but not challenging enough that it is frustrating. The aim is to develop the skills that are required to write a basic philosophy paper in a step-by-step fashion.

Please note that, while I am happy to answer any general questions you might have about level assignments, I am not able to provide any feedback on draft assignments, as providing feedback to only some students would be unfair to the others and providing feedback to

everyone would be unworkable.

Checkpoint Questions. Checkpoint Questions will be asked during class using the polling software (see below). These questions try to assess your understanding of the material. Checkpoint Questions can focus on one of the readings for the day (so please make sure to do the readings before class!) or on the ideas and arguments that have been discussed in the course.

Polling Software. This course uses Poll Everywhere. The software will be used to track attendance, to poll students, and to administer Checkpoint Questions. You can respond to in-class polls using a laptop, a tablet, a smartphone, or any other device with an internet connection. Alternatively, you can submit your answers through SMS (charges from your provider may apply). You need to register using the link provided on cuLearn. Please make sure to register with your Carleton email address and to use the first and last name that appear on your student card. Please note that, unless you make special arrangements with me, failing to register for this course on Poll Everywhere may result in your failing to earn attendance or participation points.

Tests. Tests will be held on cuLearn during regular class time.

Extensions. Extensions will be granted only in *extraordinary* circumstances (e.g. documented illness or family emergency) *and* only if the extension is requested *in writing before* the assignment deadline. If you think you will need an extension, please contact me as soon as possible by e-mail.

Academic Integrity. You are responsible for ensuring that you understand the nature of academic offences (such as plagiarism and unauthorized collaboration), as defined in the [Undergraduate Calendar](#), and to avoid both committing them and aiding or abetting academic offences perpetrated by other students. Please be aware that I am bound to report any suspected academic offence directly to the Office of the Dean.

Copyright. Carleton University is committed to compliance in all copyright matters. Noncompliance is a violation of the Canadian Copyright Act. In addition to any actions that might be taken by any copyright owner or its licensing agent, the University will take steps against any breach of this policy. In Canada, copyright for a work is given automatically to the creator of the work. The work does not need to be marked or declared as copyrighted in order to be copyrighted. The majority of works in Canada are copyrighted. It is important for students to understand and respect copyright. Copyright determines your usage rights for a particular work, which includes textbooks, web pages, videos and images, both electronic and hard copy. Students may not photocopy entire or major portions of books or other works, even if it is only for their personal use. Fair dealing makes some allowances for copying small portions of works. See Carleton's Fair Dealing Policy for more information. If journal articles or portions of works are available through the library, either as hard copies or electronically, students may make a single copy for their personal use. Students may not distribute copies of works that are under copyright. For more information, please see the Carleton's Fair Dealing Policy and the library's copyright website: www.library.carleton.ca/copyright.

VII. Course Schedule

Please note that all information provided below is provisional and subject to change.

You are responsible for checking this Course Outline online regularly for any changes or updates.

With the exception of the chapters from T. S. Kuhn's *The Copernican Revolution*, all other readings can be accessed through cuLearn.

Important Dates/Deadlines	
Level Attempt 1	Oct 2
Level Attempt 2	Oct 23
Level Attempt 3	Nov 20
Level Attempt 4	Dec 11
Test 1	Nov 4
Test 2	Dec 9
Fall Break (No Classes)	Oct 26–30

Unit	Readings	Dates
Unit 0: Introduction		Sep 9–11
		Sep 16–18
Unit 1: Inductivism	David Hume, <i>An Enquiry Concerning Human Understanding</i> (Section IV: ‘Sceptical Doubts Concerning the Operations of the Understanding’ Part I and Part II only!) Nelson Goodman, ‘The New Riddle of Induction’ (skip §3!) <i>Background Reading:</i> Thomas Kuhn, <i>The Copernican Revolution</i> : Ch 1 ‘The Ancient Two-Sphere Universe’	Sep 23–25
Unit 2: Deductivism	Karl Popper, ‘Conjectural Knowledge’ Karl Popper, ‘Science: Conjectures and Refutations’ Carl Hempel ‘Problems and Changes in the Empiricist Criterion of Meaning’ <i>Background Reading:</i> Thomas Kuhn, <i>The Copernican Revolution</i> : Ch 2 ‘The Problem of Planets’	Sep 30–Oct 2
Unit 3: Underdetermination	W. V. Quine, ‘Two Dogmas of Empiricism’ (§6 only!) Larry Laudan, ‘Demystifying Underdetermination’ Larry Laudan ‘The Demise of the Demarcation Problem’ <i>Background Reading:</i> Thomas Kuhn, <i>The Copernican Revolution</i> : Ch 5 ‘Copernicus’ Innovation’	Oct 7–9

Unit 4: A Farewell to Methodology?	Thomas Kuhn, ‘The Resolution of Revolutions’ Imre Lakatos ‘Falsificationism and the Methodology of Scientific Research Programs’ (§§1-3(b) only!) <i>Background Reading:</i> Thomas Kuhn, <i>The Copernican Revolution</i> : Ch 6 ‘The Assimilation of Copernican Astronomy’	Oct 14–16
Unit 5: Probabilism	Michael Strevens ‘Notes on Bayesian Confirmation Theory’, §§1–6. <i>Background Reading:</i> Thomas Kuhn, <i>The Copernican Revolution</i> : Ch 7 ‘The New Universe’	Oct 21–23
	Michael Strevens ‘Notes on Bayesian Confirmation Theory’, §§7–11.	Nov 4–6
Unit 6: Explanation and Causation	Carl G. Hempel ‘The Thesis of Structural Identity’	Nov 11–13
Unit 7: Realism	Bas van Fraassen (1982) ‘Arguments Concerning Scientific Realism’ Larry Laudan (1981) ‘A Confutation of Convergent Realism’	Nov 18–20
Unit 8: Values	Helen Longino (1990) ‘Values and Objectivity’ Elizabeth Anderson (2004) ‘Uses of Value Judgment in Science’ <i>Background Reading:</i> Stephen Jay Gould, ‘Measuring Heads’ (from <i>The Mismeasure of Man</i>)	Nov 25–27
	John Hardwig (1994) ‘Towards an Ethics of Expertise’ Alexander Guerrero (2018) ‘Living with Ignorance in a World of Experts’ Elizabeth Anderson (2011) ‘Democracy, Public Policy, and Lay Assessment of Scientific Testimony’ <i>Background Reading:</i> Naomi Oreskes & Erik M. Conway ‘The Denial of Global Warming’ (from <i>Merchants of Doubt</i>) Also, please watch the documentary <i>Merchants of Doubt</i> posted on cuLearn	Dec 2–4

Department of Philosophy and Carleton University Policies (Fall/Winter 2020-21)

Assignments:

Please follow your professor's instructions on how assignments will be handled electronically. There will be NO hard copies placed in the essay box this coming year.

Evaluation:

Standing in a course is determined by the course instructor subject to the approval of the Faculty Dean. This means that grades submitted by the instructor may be subject to revision. No grades are final until they have been approved by the Dean.

Deferrals for Term Work:

If students are unable to complete term work because of illness or other circumstances beyond their control, they should contact their course instructor no later than *three working days* of the due date. Normally, any deferred term work will be completed by the last day of the term. Term work cannot be deferred by the Registrar.

Deferrals for Final Exams:

Students are expected to be available for the duration of a course including the examination period. Occasionally, students encounter circumstances beyond their control where they may not be able to write a final examination or submit a take-home examination. Examples of this would be a serious illness or the death of a family member. If you miss a final examination and/or fail to submit a take-home examination by the due date, you may apply for a deferral no later than *three working days* after the original due date (as per the University Regulations in [Section 4.3 of the Undergraduate Calendar](#)). Visit the [Registrar's Office](#) for further information.

Plagiarism:

It is the responsibility of each student to understand the meaning of 'plagiarism' as defined in the Undergraduate or Graduate Calendars, and to avoid both committing plagiarism and aiding or abetting plagiarism by other students. ([Section 10.1 of the Undergraduate Calendar Academic Regulations](#))

Academic Accommodation:

You may need special arrangements to meet your academic obligations during the term:

- *Pregnancy or religious obligation:* write to your professor with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. For more details visit the [EDC](#) website.
- *Academic accommodations for students with disabilities:* The [Paul Menton Centre](#) for Students with Disabilities (PMC) provides services to students with Learning Disabilities (LD), psychiatric/mental health disabilities, Attention Deficit Hyperactivity Disorder (ADHD), Autism Spectrum Disorders (ASD), chronic medical conditions, and impairments in mobility, hearing, and vision. If you have a disability requiring academic accommodations in this course, please contact PMC at 613-520-6608 or pmc@carleton.ca for a formal evaluation. If you are already registered with the PMC, contact your PMC coordinator to send your Letter of Accommodation at the beginning of the term, and no later than two weeks before the first in-class test or exam requiring accommodation. After requesting accommodation from PMC, meet with your professor to ensure accommodation arrangements are made.
- *Survivors of Sexual Violence:* As a community, Carleton University is committed to maintaining a positive learning, working and living environment where sexual violence will not be tolerated, and where survivors are supported through academic accommodations as per [Carleton's Sexual Violence Policy](#).
- *Accommodation for [Student Activities](#):* Carleton University recognizes the substantial benefits, both to the individual student and for the university, that result from a student participating in activities beyond the classroom experience. Reasonable accommodation must be provided to students who compete or perform at the national or international level. Please contact your instructor with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist.

Important Dates:

Sept. 9	Classes start.
Sept. 23	Last day for registration and course changes for fall term and fall/winter (two-term) courses.
Sept. 30	Last day for entire fee adjustment when withdrawing from fall term or two-term courses. Withdrawals after this date will result in a permanent notation of WDN on the official transcript.
Oct. 12	Statutory holiday. University closed.
Oct. 26-30	Fall Break – no classes.
Nov. 27	Last day for summative tests or examinations, or formative tests or examinations totaling more than 15% of the final grade, before the official examination period.
Dec. 11	Last day of fall term classes. <i>Classes follow a Monday schedule.</i> Last day for academic withdrawal from fall term courses. Last day for handing in term work and the last day that can be specified by a course instructor as a due date for term work for a fall term course.
Dec. 12-23	Final examinations for fall term courses and mid-term examinations in two-term courses. Examinations are normally held all seven days of the week.
Dec. 23	All take-home examinations are due.
Jan. 6	Classes begin.
Jan. 20	Last day for registration and course changes in the winter term.
Jan. 31	Last day for a full fee adjustment when withdrawing from winter term courses or from the winter portion of two-term courses. Withdrawals after this date will result in a permanent notation of WDN on the official transcript.
Feb. 15	Statutory holiday. University closed.
Feb. 15-19	Winter Break – no classes.
Mar. 26	Last day for summative tests or examinations, or formative tests or examinations totaling more than 15% of the final grade, in winter term or fall/winter courses before the official examination period.
Apr. 2	Statutory holiday. University closed.
Apr. 9	Last day of two-term and winter term classes. Last day for academic withdrawal from fall/winter and winter courses. Last day for handing in term work and the last day that can be specified by a course instructor as a due date for two-term and for winter term courses.
Apr. 10	No classes or examinations take place.
Apr. 11-23	Final examinations for winter term and two-term courses. Examinations are normally held all seven days of the week.
Apr. 23	All take-home examinations are due.

Addresses:

Department of Philosophy:
www.carleton.ca/philosophy
520-2110

Registrar's Office:
www.carleton.ca/registrar

520-3500

Academic Advising Centre:

www.carleton.ca/academicadvising

520-7850

Writing Services:

<http://www.carleton.ca/csas/writing-services/>

520-3822

MacOdrum Library

<http://www.library.carleton.ca/>

520-2735